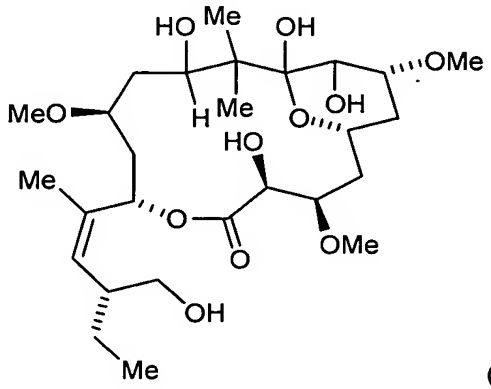
AMENDMENTS TO THE CLAIMS

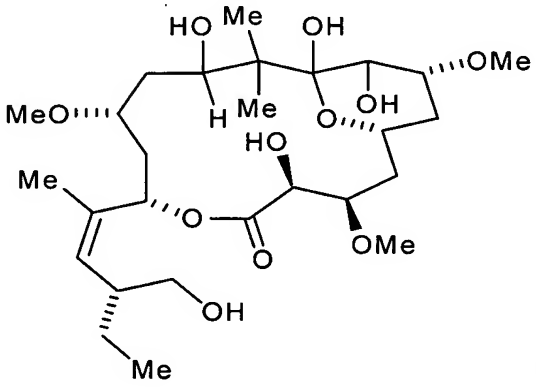
This listing replaces all prior versions and listings of claims in the application.

1. (Original) A synthetic compound of formula:



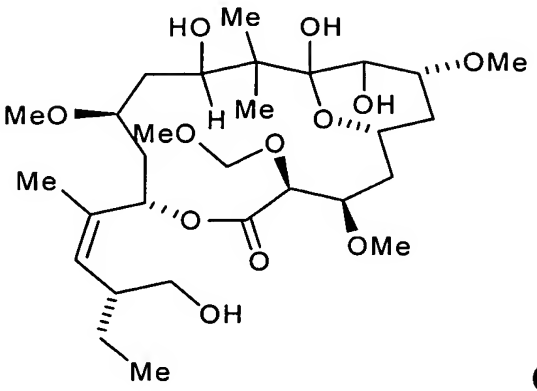
(I)

2. (Original) A synthetic compound of formula:



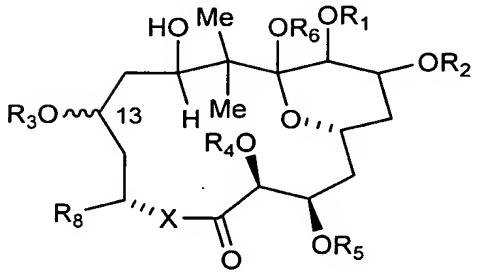
(II)

3. (Original) A compound of formula:



(III)

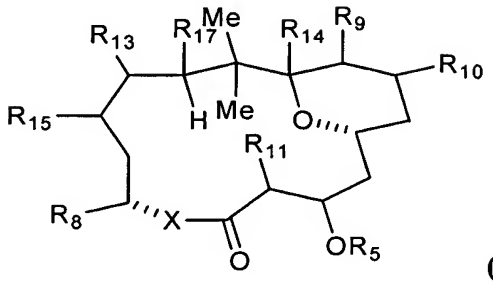
4. (Original) A compound of formula:



(IV)

where R_1, R_2, R_3, R_4, R_5, and R_6 can be the same or different and are selected from the group consisting of H, Me, alkyl, functionalized alkyl, and where R_8 is selected from the group consisting of H, aryl, heteroaryl, alkyl, functionalized alkyl, alkenyl, functionalized alkenyl, alkynyl, and functionalized alkynyl wherein the functional group is a heteroatom, a halide, an aryl, or a heteroaryl.

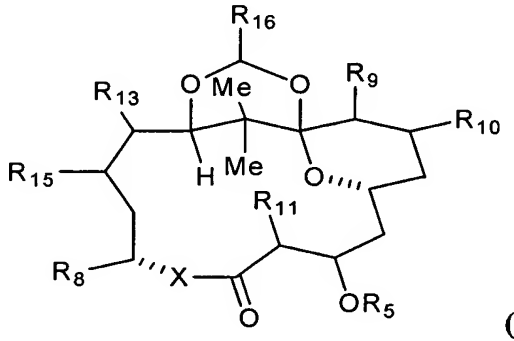
5. (Original) A compound of formula:



(V)

where R_{13} is H or Me, where R_{14}, R_{17} can be the same or different and are selected from the group consisting of H, OH, and OR, where R_9, R_{10}, R_{11}, R_{15} can be the same or different and are selected from the group consisting of H, Me, and OR, where R and R_5 can be the same or different and are selected from the group consisting of H, Me, alkyl, or functionalized alkyl, where R_8 is selected from the group consisting of H, aryl, heteroaryl, alkyl, functionalized alkyl, alkenyl, functionalized alkenyl, alkynyl, and functionalized alkynyl, where X is O or NH, and wherein the functional group is a heteroatom, a halide, an aryl, or a heteroaryl.

6. (Original) A composition comprising a compound of formula:

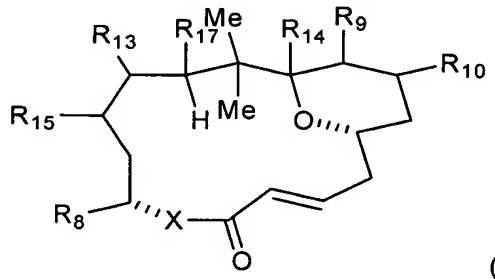


(VI)

where R_{13} is H or Me, where R_9, R_{10}, R_{11}, R_{15} can be the same or different and are selected from the group consisting of H, Me, OR, where R and R_5 can be the same or different and are selected from the group consisting of H, Me, alkyl, or functionalized alkyl, where R_8, R_{16} can be the same or different and are selected from the group consisting of H, aryl, heteroaryl, alkyl, functionalized alkyl, alkenyl, functionalized alkenyl, alkynyl, and functionalized

alkynyl, and where X is O or NH and wherein the functional group is a heteroatom, a halide, an aryl, or a heteroaryl.

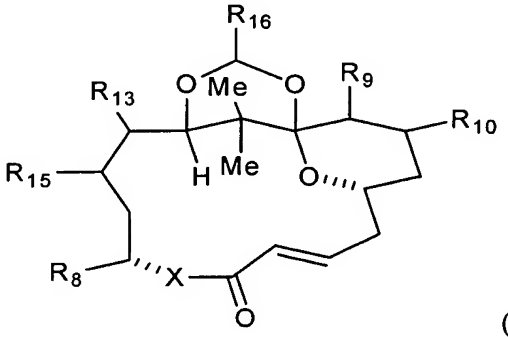
7. (Original) A composition comprising a compound of formula:



(VII)

where R_{13} is H or Me, where R_{14}, R_{17} can be the same or different and is selected from the group consisting of H, OH, or OR, where R_9, R_{10}, R_{15} can be the same or different and are selected from the group consisting of H, Me, OR, where R is selected from the group consisting of H, Me, alkyl, or functionalized alkyl, where R_8 is selected from the group consisting of H, aryl, heteroaryl, alkyl, functionalized alkyl, alkenyl, functionalized alkenyl, alkynyl, and functionalized alkynyl, where X is O or NH, and wherein the functional group is a heteroatom, a halide, an aryl, or a heteroaryl.

8. (Original) A composition comprising a compound of formula:

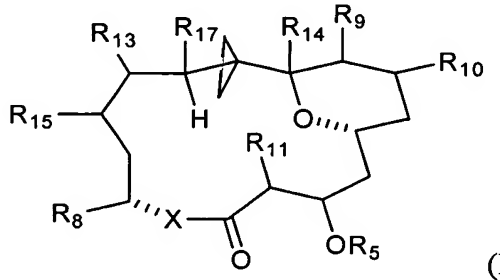


(VIII)

where R_{13} is H or Me, where R_9, R_{10}, R_{15} can be the same or different and are selected from the group consisting of H, Me, OR, where R is selected from the group consisting of H, Me, alkyl, or functionalized alkyl, where R_8, R_{16} can be the same or different and are selected

from the group consisting of H, aryl, heteroaryl, alkyl, functionalized alkyl, alkenyl, functionalized alkenyl, alkynyl, and functionalized alkynyl, where X is O or NH, and wherein the functional group is a heteroatom, a halide, an aryl, or a heteroaryl.

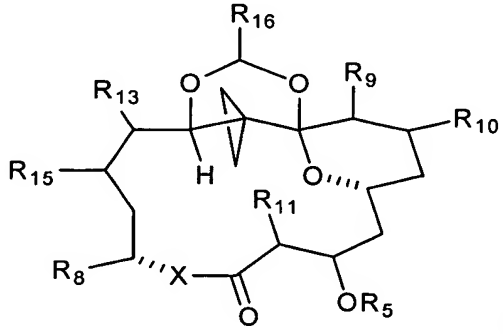
9. (Original) A composition comprising a compound of formula:



(IX)

where R_{13} is H or Me, where R_{14}, R_{17} can be the same or different and are selected from the group consisting of H, OH, or OR, where R_9, R_{10}, R_{11}, R_{15} can be the same or different and are selected from the group consisting of H, Me, OR, where R and R_5 can be the same or different and are selected from the group consisting of H, Me, alkyl, or functionalized alkyl, where R_8 is H, aryl, heteroaryl, alkyl, functionalized alkyl, alkenyl, functionalized alkenyl, alkynyl, and functionalized alkynyl, where X is O or NH, and wherein the functional group is a heteroatom, a halide, an aryl, or a heteroaryl.

10. (Original) A composition comprising a compound of formula:

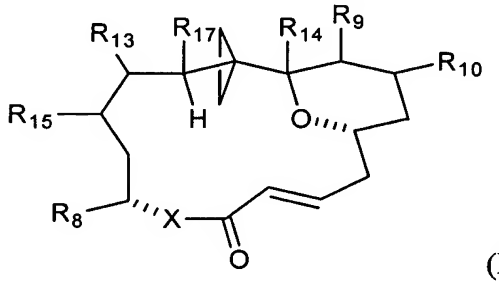


(X)

where R_{13} is H or Me, where R_9, R_{10}, R_{11}, R_{15} can be the same or different and are selected from the group consisting of H, Me, OR, where R and R_5 can be the same or different and are

selected from the group consisting of H, Me, alkyl, or functionalized alkyl, where R_8, R_{16} can be the same or different and are selected from the group consisting of H, aryl, heteroaryl, alkyl, functionalized alkyl, alkenyl, functionalized alkenyl, alkynyl, and functionalized alkynyl, where X is O or NH, and wherein the functional group is a heteroatom, a halide, an aryl, or a heteroaryl.

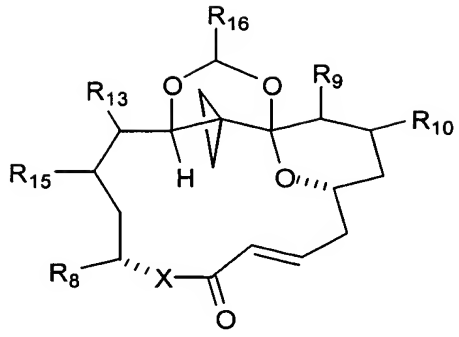
11. (Original) A composition comprising a compound of formula:



(XI)

where R_{13} is H or Me, where R_{14}, R_{17} can be the same or different and are selected from the group consisting of H, OH, or OR, where R_9, R_{10}, R_{15} can be the same or different and are selected from the group consisting of H, Me, OR, where R is selected from the group consisting of H, Me, alkyl, or functionalized alkyl, where R_8 is H, aryl, heteroaryl, alkyl, functionalized alkyl, alkenyl, functionalized alkenyl, alkynyl, and functionalized alkynyl, where X is O or NH, and wherein the functional group is a heteroatom, a halide, an aryl, or a heteroaryl.

12. (Original) A composition comprising a compound of formula:



(XII)

where R_{13} is H or Me, where R_9, R_{10}, R_{15} can be the same or different and are selected from the group consisting of H, Me, OR, where R is selected from the group consisting of H, Me, alkyl, or functionalized alkyl, where R_8, R_{16} can be the same or different and are selected from the group consisting of H, aryl, heteroaryl, alkyl, functionalized alkyl, alkenyl, functionalized alkenyl, alkynyl, and functionalized alkynyl, where X is O or NH, and wherein the functional group is a heteroatom, a halide, an aryl, or a heteroaryl.

13. (Original) A synthetic compound having the ^{13}C NMR signature of **FIG. 4** and the ^{1}H NMR signature of **FIG. 5**, wherein the compound is dextrarotary, and wherein the compound comprises microtubule-stabilizing activity.

14. (Original) A method for treating cancer comprising contacting a tumor cell within a subject with a compound of any one of claims 1 through 13 for a period of time and in an amount sufficient to inhibit growth of the tumor cell.

15. (Original) A method of suppressing growth of a tumor cell comprising contacting said cell with a compound of any one of claims 1 through 13 for a period of time and in an amount sufficient to suppress growth of the tumor cell.

16. (Original) A method of inhibiting growth of proliferating cells comprising the step of administering to the proliferating cells the compound of any one of claims 1

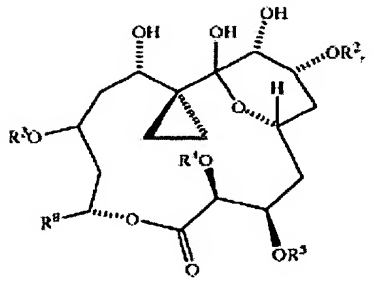
through 13 for a period of time and in an amount sufficient to inhibit proliferation of the cells.

17. (Original) A method of stabilizing microtubule formation in a cell comprising administering to the cell the compound of any one of claims 1 through 13 for a period of time and in an amount sufficient to stabilize microtubule formation.

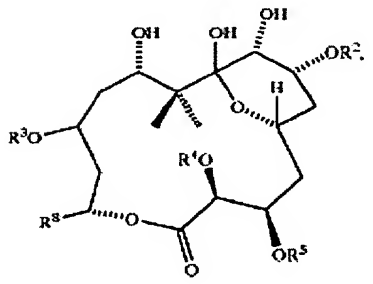
18-22. (Canceled)

23. (Original) A compound selected from the group consisting of:

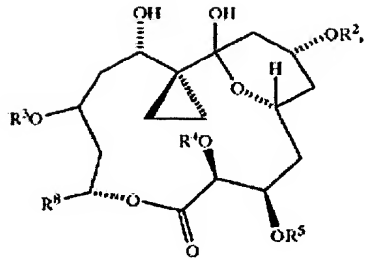
65A



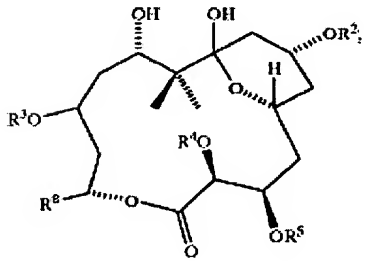
65B



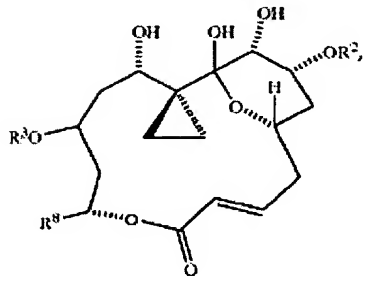
65C



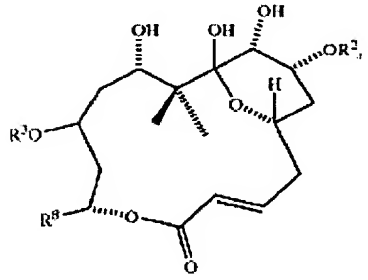
65D



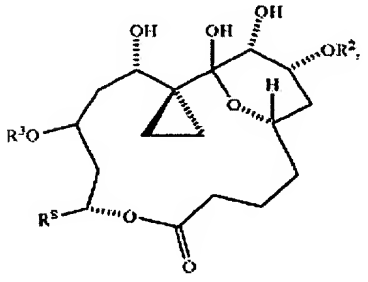
65E



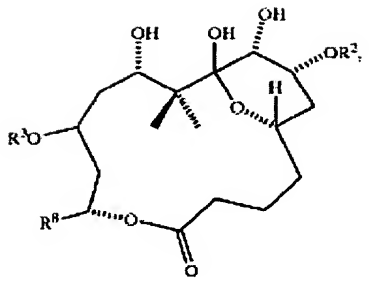
65F



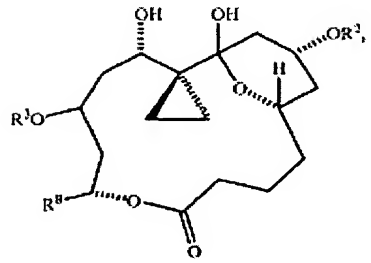
65G



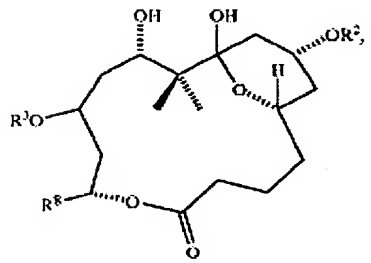
65H



65I



65J

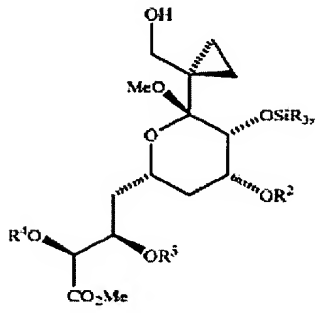


wherein R^2, R^3, R^4, R^5 can be the same or different and are selected from the group consisting of alkyl, and functionalized alkyl, and where R^8 is selected from the group consisting of aryl, heteroaryl, alkyl, functionalized alkyl, alkenyl, functionalized alkenyl, alkynyl, and functionalized alkynyl, wherein the functional group is a heteroatom, a halide, an aryl, or a heteroaryl.

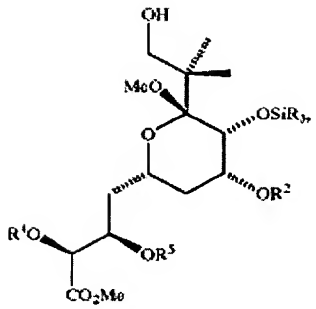
24. (Original) A method of producing Peloruside A comprising:

(a) oxidizing an alcohol function in a compounds selected from the group consisting of:

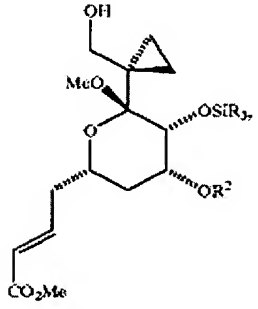
61A



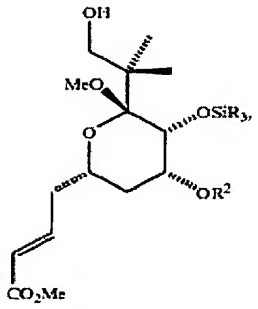
61B



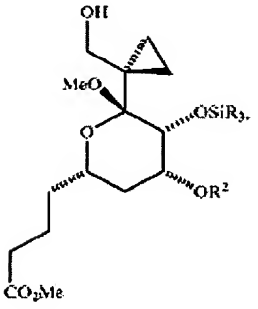
61E



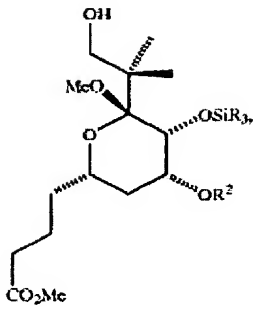
61F



61G



61H

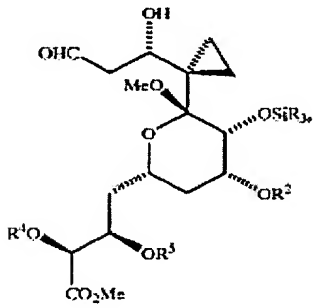


wherein R^2, R^4 and R^5 are the same or different and are selected from the group consisting of alkyl, and functionalized alkyl, wherein the functional group is a heteroatom, a halide, an aryl, or a heteroaryl, to obtain a compound having an aldehyde function;

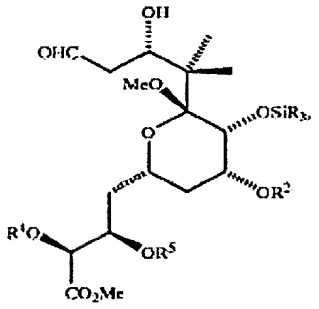
(b) reacting the compound obtained in (a) with an allylating agent;

(c) subjecting the reaction product of (b) to oxidative cleavage of the aldehyde to obtain a compound selected from the group consisting of:

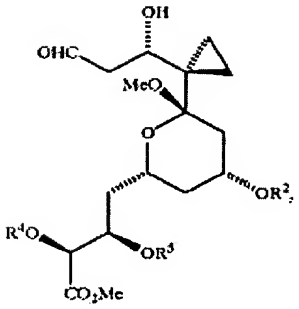
62A



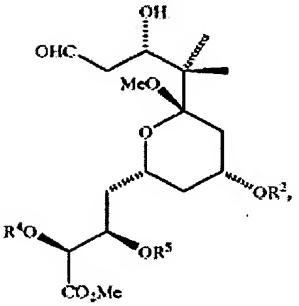
62B



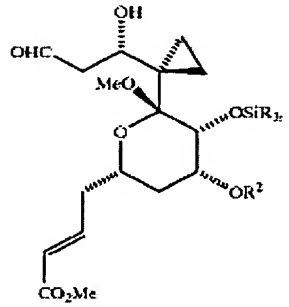
62C



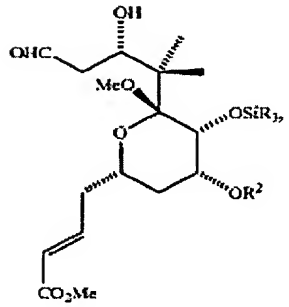
62D



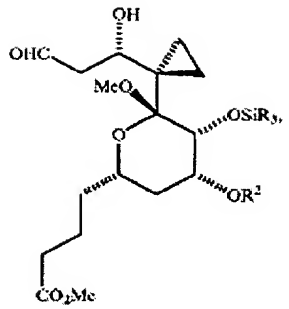
62E



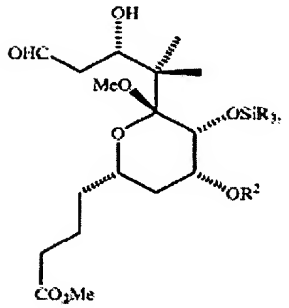
62P



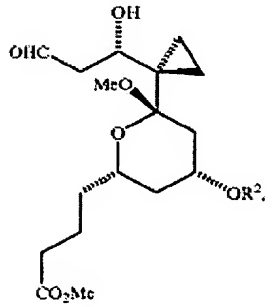
62G



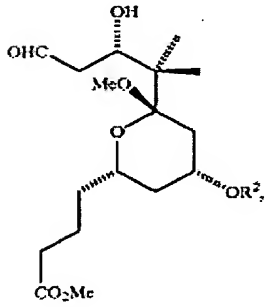
62H



62I



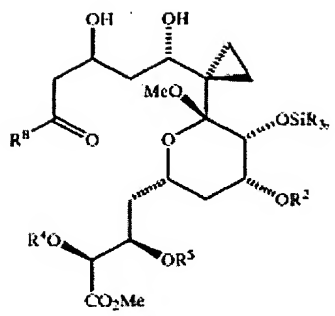
62J



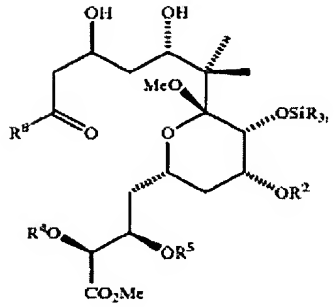
wherein R^2, R^4 and R^5 are the same or different and are selected from the group consisting of alkyl, and functionalized alkyl, wherein the functional group is a heteroatom, a halide, an aryl, or a heteroaryl;

(d) reacting the compound obtained in (c) with an enolate derived from a methyl or ethyl ketone to obtain a compound selected from the group consisting of:

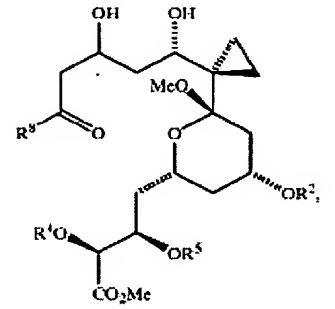
63A



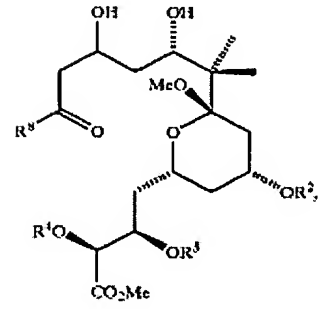
63B



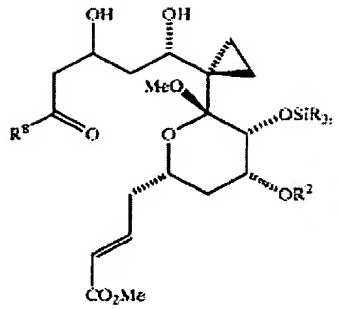
63C



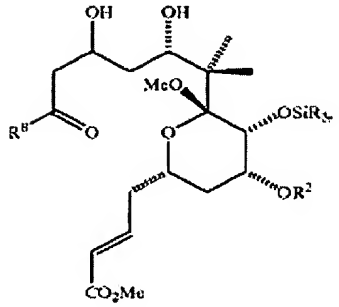
63D



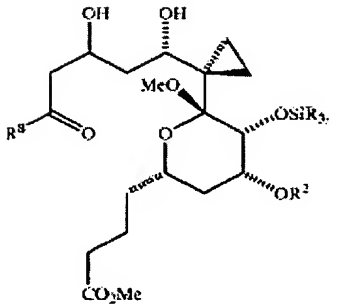
63E



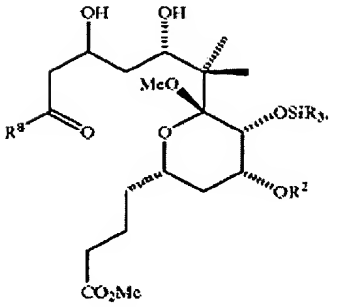
63F



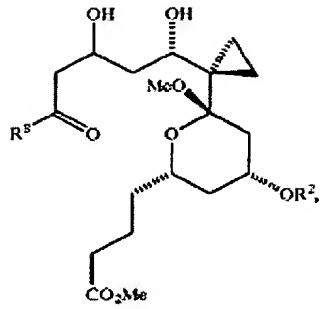
63G



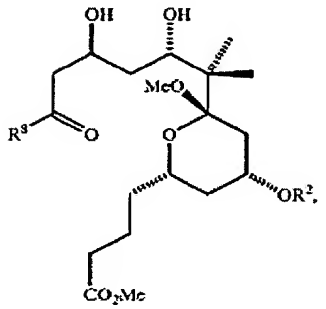
63H



63I



63J



wherein R^2, R^4 and R^5 can be the same or different and are selected from the group consisting of alkyl, and functionalized alkyl, and R^8 is selected from the group consisting of aryl, heteroaryl, alkyl, functionalized alkyl, alkenyl, functionalized alkenyl, alkynyl, and functionalized alkynyl, wherein the functional group is a heteroatom, a halide, an aryl, or a heteroaryl;

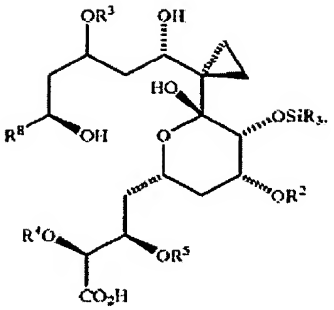
(e) reacting the compound obtained in (d) with an alkylating agent to introduce and R3 group;

(f) subjecting the compound obtained in (e) with a reducing agent to reduce the ketone group in the compound obtained in (e) to an alcohol;

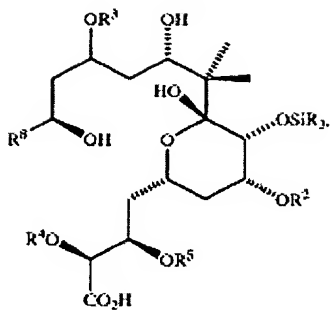
(g) converting the alcohol group of the compound obtained in (f) to an ester group;

(h) subjecting the compound obtained in (g) to an agent that hydrolyzes the ester group of the compound produced in (f) to a carboxylic acid group to obtain a seco-acid compound selected from the group consisting of:

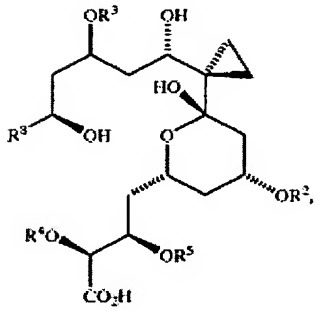
64A



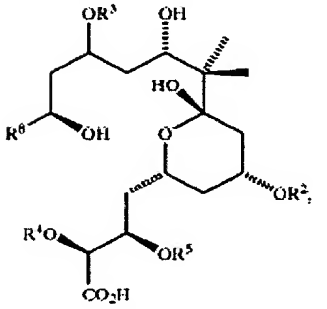
64B



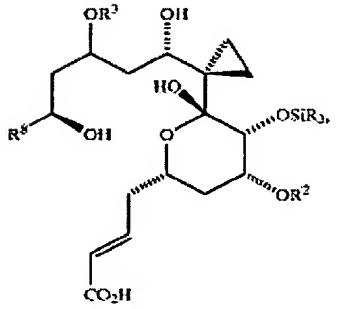
64C



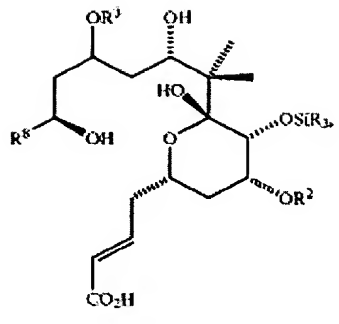
64D



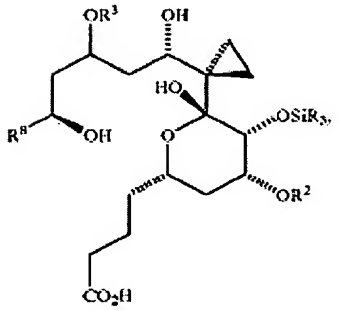
64E



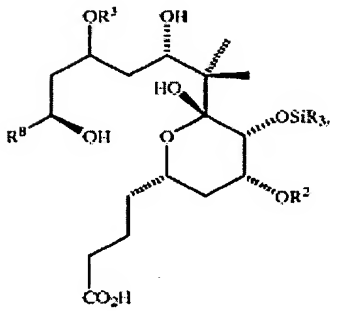
64F



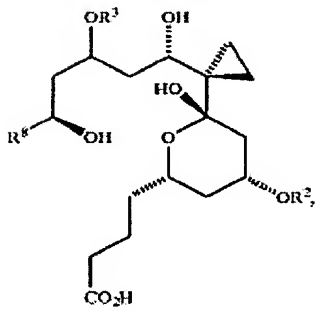
64G



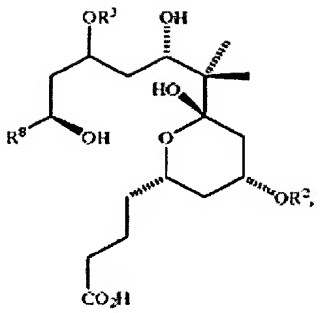
64H



64I



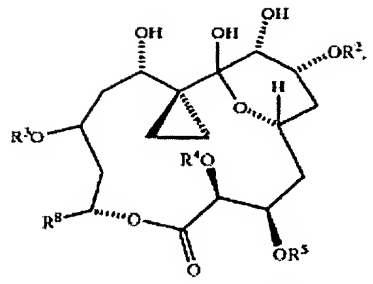
64J



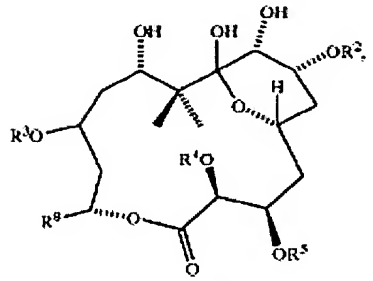
wherein R^2, R^3, R^4, R^5 can be the same or different and are selected from the group consisting of alkyl, and functionalized alkyl, and where R^8 is selected from the group consisting of aryl, heteroaryl, alkyl, functionalized alkyl, alkenyl, functionalized alkenyl, alkynyl, and functionalized alkynyl, wherein the functional group is a heteroatom, a halide, an aryl, or a heteroaryl; and

(i) reacting the carboxylic acid group and a hydroxyl group of the compound produced in (h) to obtain a macrolactone selected from the group consisting of:

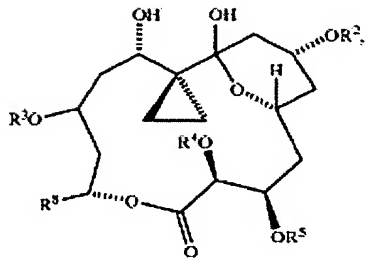
65A



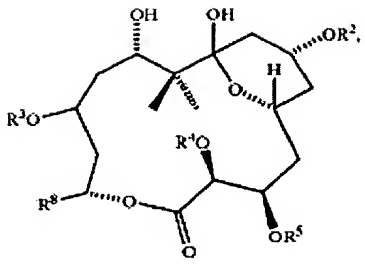
65B



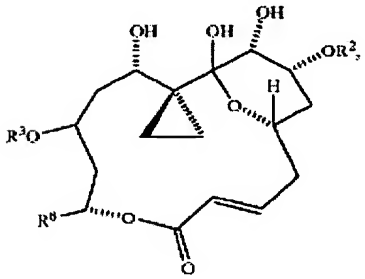
65C



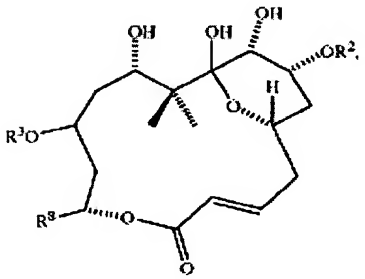
65D



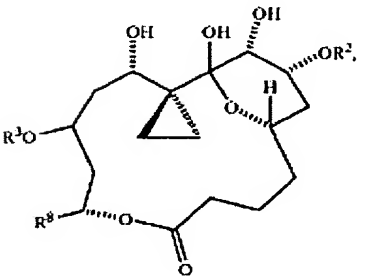
65E



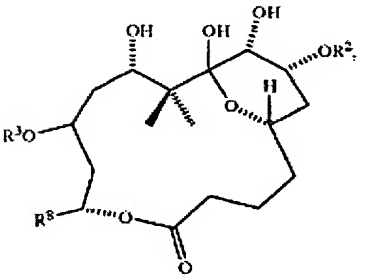
65F

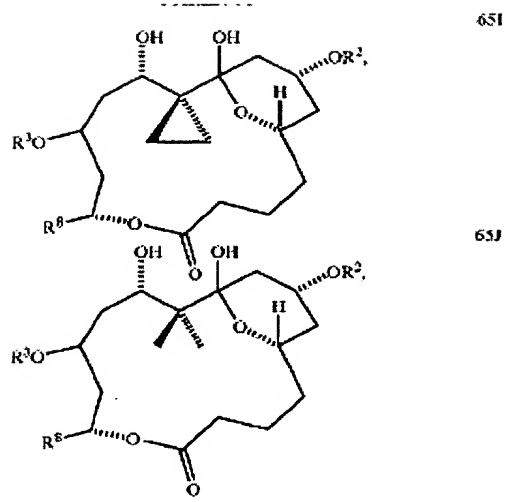


65G



65H

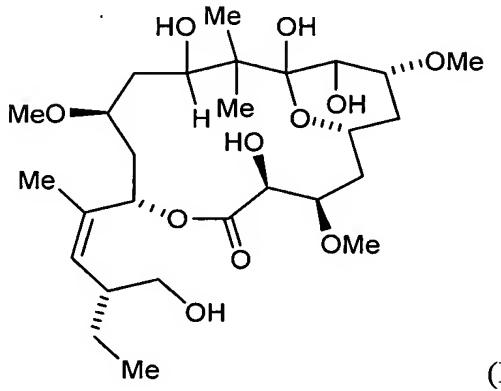




wherein R^2, R^3, R^4, R^5 can be the same or different and are selected from the group consisting of alkyl, and functionalized alkyl, and where R^8 is selected from the group consisting of aryl, heteroaryl, alkyl, functionalized alkyl, alkenyl, functionalized alkenyl, alkynyl, and functionalized alkynyl, wherein the functional group is a heteroatom, a halide, an aryl, or a heteroaryl.

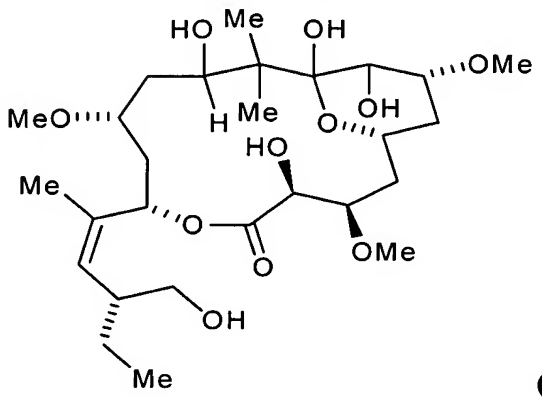
25. (Original) The method of claim 24 wherein the macrolactone is Peloruside A.

26. (Original) The method of claim 24 wherein the macrolactone has the formula:



(I)

27. (Original) The method of claim 24 wherein the macrolactone has the formula:



(II)